



## *Message from the President*

### Remember the Good Things

2016 is wrapping up. It's time to take stock of your accomplishments. It's easy to forget all the good things that happen during a busy year. Chances are your "To Do" list was very long and you probably didn't get everything done. We all tend to remember the negatives - projects that didn't go well or animals we couldn't save. We get bogged down in the daily grind and forget about the bigger picture – the new cages we built, the new volunteers we trained, the big fundraiser 6 or 8 months ago. Maybe it would be a good idea to write out a list of those accomplishments for 2016, not just for your sake, but so can remember to thank the donors and volunteers who made it possible. A handwritten note (not an email!) makes a big difference for some people and might encourage them to give again next year. I bet you'll need support for that wish list for next year.

*Happy Holidays!*



Yellow-crowned Night-Heron by Mathias Engelmann

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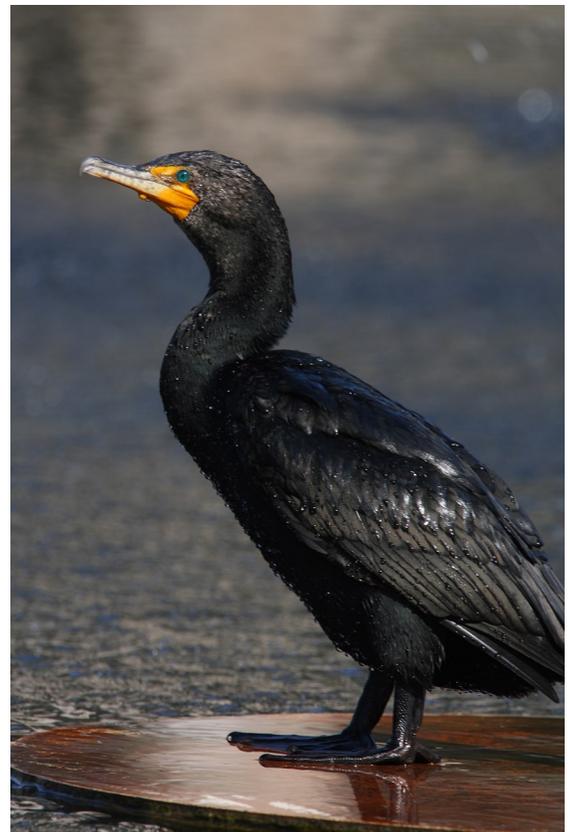
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## *Meet the Cormorant by Linda Bergman-Althouse*

*as written for "Carolina Salt Magazine"*

When we receive distress calls at the Outer Banks Wildlife Shelter in Newport regarding beached or injured seabirds, most people can identify pelicans and gulls, but sometimes they are stumped and say "I don't know what it is, but it's all black." By that description, we're pretty sure we will soon be admitting a Cormorant. Although there are over 40 species of Cormorants throughout the world, the North Carolina Cormorant is of the double-crested variety with the occasional Great Cormorant passing through. They are permanent residents in the coastal plains region, and the population grows when northern birds migrate to our warmer waters during winter. The Cormorant is said to be from an ancient bird group that dates all the way back to the time of the dinosaurs. Cormorants, coastal water birds rather than oceanic, are large 4 to 6 pounders with wingspans around 54 inches. Adults are black with long, slender necks. They are social, web-footed, aquatic eaters that dive deeply and swim underwater to mainly catch fish, but if presented, they won't pass by small eels or water snakes. These opportunistic feeders use their slender, hooked bills to take whatever food is available. Some people call the cormorant "snake bird" or "submarine bird" because it swims so deep in the water and disappears for long periods of time only to resurface far from their point of entry. When its long neck and pointed head sticks up out of the water, it resembles a periscope because the majority of its body remains submerged. You may have seen these dark vulture-like birds perched on pylons, tree stumps or rocks with their wings spread open to dry. Their feathers hold water which reduces buoyancy allowing them to dive up to 20 feet, so they need to drip dry a little. The wing-drying pose serves other functions as well, such as aiding thermoregulation, digestion and balance. Stoutly built, Cormorants use their powerful legs to help propel them through water and ready them for take-off. If you see a bird running on the water, before taking off skyward, it's probably a Cormorant. The Double-crested Cormorant is the most common species in the eastern United States and goes by the scientific name of *Phalacrocorax auritus*, which means bald crested crow. The double crest, which appears during its short



**Adult Cormorant**

**Photograph by John Althouse**

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## *Meet the Cormorant (continued)*

breeding season, is formed by long, curled upward crown feathers on both sides of its head. Cormorants are monogamous and return to the same site to breed every year. Although we commonly admit adults and one to two-year-old juveniles that still have a gray or tan colored neck and breast, we never see infants because nesting most often occurs on islands with sparse vegetation, rocky shoals, cliffs or offshore rocks where there is no human presence. Mates will breed at age three and the female will lay 2 to 7 eggs in a 12 to 20-inch-high, twigged nest, but on average the Cormorant pair will produce only 2 young.

**Interesting Factoid:** Fishermen in Asian countries such as China and Japan have trained Cormorants



**Juvenile Cormorant**

**Photograph by John Althouse**

to assist them in their fishing pursuits. A loop of twine is tied loosely near the base of the bird's throat, which allows the bird only to swallow small fish and not the larger ones. When the bird returns to the raft or boat, the fisherman removes the fish from the bird's throat. This method is not as common today, since more efficient methods of catching fish have been developed, but the fishing partnership of human and cormorant still exists in many remote areas.

The Cormorant is a powerfully robust bird, and wildlife rehabilitators understand during their rehabilitation we will have quite the challenge of bird versus human strength on our hands. If that hooked bill catches a finger or any other part of your body it will feel like tightening vise-grip pliers that will take both you and a fellow rehabilitator to release, if you don't faint first! Our hands need to be protected and quick and appropriate holds must be utilized for the bird's safety and our own. A full visor should be worn when handling these birds who are agile and capable of such great force. Cormorants are admitted to the shelter

for a variety of reasons to include fishing line or gear entanglements, collisions with automobiles, scrapes with power lines, fungal infections that affect their respiratory system and occasionally, lead poisoning.

My most recent personal rescue of a Cormorant occurred a couple months ago in Morehead City after receiving a call that a "large black bird" was standing in the middle of the highway. I arrived to a snarl of traffic, as all the cars were being directed around "the bird" by a lady standing in the pouring rain while waving her

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## *Meet the Cormorant (continued)*

jacket above her head. It looked crazy – but we all go there from time to time!! I let her know I was there and proceeded to walk the bird, now identified as a Cormorant, to the road's shoulder with my car. I had nets, poles, bags and a kennel cab, but he was mobile and took a run for it through the strawberry field. At least, he was out of traffic. I ran too, in the rain and in the mud. This was not going to be easy. Although he couldn't fly, he was still faster than I was on foot! I turned him toward some stationary heavy equipment in the field, just to give him a few obstacles that could slow him down, hopefully. Surprisingly, someone had excavated a deep hole for some reason, and the bottom was filled with water. There was my answer! I directed and maneuvered him to-

ward the hole, and he voluntarily jumped in. I laid on the wet and muddy ground above him as he paddled around with nowhere to go and used the long pole to net him and basically hold him against the muddy wall to bring him up. A couple girls from the strawberry farm had shown up by then and helped me cover the net with a towel and hold him in place until I

could get the feisty seabird into the transport bag. Everything went in, the Cormorant in the net, the towel wrapping him and the pole! He was NOT getting out!! The bag looked like a huge lollipop with the pole sticking out. Our guess is, he saw the wet highway as a body of water and landed in the middle of it. That happens



**Photograph by John Althouse**



**Photograph by John Althouse**

quite often with Cormorants. Fortunately for this one, his pride was more injured than his body, so with less than a week's stay at the shelter, he was ready to head back to big water again. Anyone who encounters an injured Cormorant, please be advised to call a wildlife shelter for professional assistance. The Cormorant is a tough cookie that can do some major damage if not handled appropriately and with precaution!

The Double-crested Cormorant is protected by the Migratory Bird Treaty Act of 1918.

## *If you can't stand the heat*

*by Toni O'Neil*

Whether you believe in global warming or not, you can't deny that the seasons seem to be changing. Temperatures are hotter, longer, and it often seems to go straight from winter to summer with only a day or two of spring thrown in between. If you think this is unsettling for you, think about what it is doing to the natural order of the species we work with. Remember when there used to be distinct Baby Seasons? One in the spring and one in the fall, with a winter break before we started all over again. Now they just seem to merge into each other and you are left trying to figure out if it's a very late fall baby that was just admitted, or a very early spring baby. I can remember having all winter to work on clean ups, cage repairs, etc. - now I'm still rehabbing and miss my former "break".

Have you looked at your statistics and checked the dates when certain species start appearing? Notice anything different from year to year? The peaks of the seasons are definitely changing!

## *WRNC is still looking for cage grant applicants*

*by Mathias Engelmann*

We are still looking for cage grant applications. If you have an existing cage that needs a makeover or you want to build a new cage, this might be the way to get all the materials for free. Go to our website ([www.ncwildliferehab.org](http://www.ncwildliferehab.org)) and download the application.

You do need a plan of action if you want to apply. Think about what exactly you're going to build, where to place it, what it will look like, a list of materials needed, and how wildlife (and you) are going to benefit from this project. Do you have any volunteers with carpentry experience that you can recruit?

## *Ask for Raffle items*

*by Toni O'Neil*

Our annual fundraising raffle each Saturday evening after the last classes end is always entertaining and surprising. Everyone enjoys the anticipation to see if their name or ticket number gets called out and they can run down and select a prize. It's an exciting way to end the first day of the symposium and relax with friends before the banquet dinner and general meeting that night.

The success of the raffle each year comes from the efforts of many - the raffle committee members call and write to companies and ask if they will donate to a good cause. Members ask their favorite stores to donate and also "re-gift" - nothing wrong with that at all! If you can't use it, or don't really have room for it, I'm betting someone else would love to have it! Keep this in mind during the holidays and watch for sales of items you think would make great raffle prizes. Make that your donation to a great cause - our members, our NC birds and animals, and the wildlife rehabilitation profession!

All items in good condition can be used - big and small - and assembled into themed gift baskets. Or make up your own gift basket with a selection of items you think someone would enjoy receiving.

You know how the raffle works - you buy your tickets, place them in the containers by the items you choose and hope to win. When your ticket is drawn you get to select from that gift category and pick out what you like best. There is always a fantastic and amazing selection - all donations from businesses and people who support WRNC. The ticket prices will remain the same: Tickets: \$1.00 each – or 6 tickets for \$5.00 and yes, 13 tickets for \$10.00 Plus even better..... 28 tickets for \$20.00 (best value!!!). The money raised is used for the Cage Grants, the Chimney Swift Tower Grants, and the annual symposium Scholarships. So you see - the members benefit!



**We have a winner!**

**Photograph by Linda Bergman-Althouse**

**A BIG “THANK YOU” TO ALL THE BUSINESS AND CORPORATE SPONSORS!**

**Many of them support the raffle every year**

## *Special donation for our Symposium Raffle!*

Elizabeth Hanrahan has graciously donated an entire flight cage to be raffled off at the WRNC symposium Saturday evening. The cage is 34' long, 12' wide and 12' tall, constructed with 4x4 posts, wood frame, netting, wood lattice sides, plywood predator barrier!

The materials are easily worth thousands of dollars. There is one stipulation – the winner has to come to Elizabeth's facility in Ocracoke, NC, dismantle the cage and haul it to their location. That will require good organization, not to mention manpower, tools, at least one truck and a long ride on the ferry to and from Ocracoke Island to transport the materials back to the mainland.

## *Appalachian Wildlife Refuge*

*by Kimberly Brewster*

Appalachian Wildlife Refuge was formed in response to the increasing number of wildlife requiring assistance and the need for more trained people and resources to help them in Western North Carolina. The timing is critical as the number of animals coming in each year has increased from almost 1,500 in the western North Carolina area last year to over 1,600 as of this month.

As of November 30, 2016, the WNC Nature Center can no longer accept injured and orphaned wildlife due to unforeseen circumstances with the space they have been using for rehabilitation. Fortunately, a site has been found for Appalachian Wild to open a triage facility to give these wild animals a place to go for care! Thanks to generous donors, the first milestone has been reached with two years of operating



funds in the bank. The property that will be leased comes with a modular building that has been donated to Appalachian Wild. But, to get the doors open the building is in need of repairs including a new roof and flooring. Appalachian Wild is working to raise the remaining funds and in-kind donations of materials/supplies, along with recruiting skilled volunteer help.

For more information go to [www.appalachianwild.org](http://www.appalachianwild.org) or contact Co-Founder Kimberly Brewster at [kimberly@appalachianwild.org](mailto:kimberly@appalachianwild.org).

Photograph by Savannah Trantham

# Winterizing your facility

by Mathias Engelmann

Is there anything special you do at your facility to get ready for winter? I'm thinking about heat lamps, heated perches for outdoor enclosures, added shelter, adjusted food amounts, just to name a few. Here are a few cold weather-related ideas from Carolina Raptor Center (CRC).

## Water

We have frost-proof faucets near our outdoor cages. It is important to turn these faucets off when not in use. This allows water to drain out of the upright pipe and prevent damage by sub-freezing temperatures.

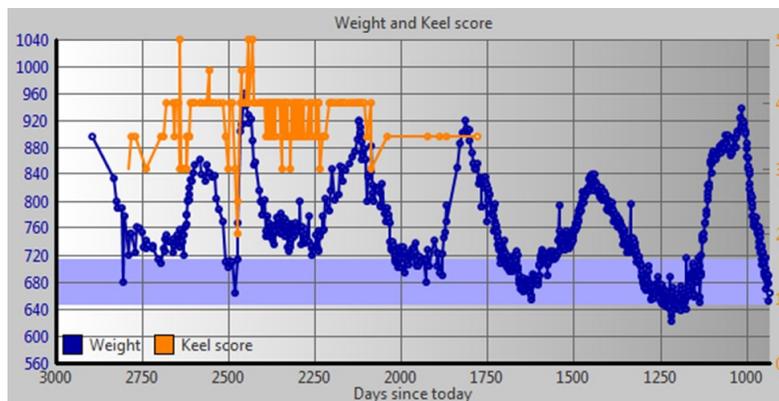
We typically disconnect water hoses attached to these faucets and drain them when it gets really cold. Chances are you won't be cleaning the cages or changing water at that time .

## Leaves

Many of CRC's cages are located under deciduous trees. That means lots of leaves collect on top of the roof this time of year, which darkens the cages considerably. The leaves also hold rainwater (if it ever rains again!) which will cause wood to rot quickly. So we rake each roof a few times during the fall and early winter, always at a time when there are no birds in the cages. Did you know that when you are raking those leaves off the cages (or blowing them off with a leaf blower) you are potentially aerosolizing particles that could prove harmful to your patients? We clear the roof when cages are empty and wait a little while to "let the dust settle" before placing birds in newly-raked cages.

## Food

Some birds are not well-equipped to deal with cold weather and may need extra calories. This would include some of the migratory species that usually head south, such as Broad-winged Hawks. We worry about birds that are lean by nature and have little body fat, such as Barn Owls or Northern Harriers. Smaller birds have a higher metabolism than larger ones so they will require more food per unit bodyweight. For all these birds it pays to plan ahead.



They will naturally want to add some fat reserves during the fall months and we make sure they can do that, within reason. A birds' weight will fluctuated fairly predictably with the seasons. The graph to the left shows the weight curve (in blue) of a resident Barred Owl "Ulula" at CRC with a spike in the winter and a dip every summer.

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## *Winterizing your facility (continued)*

### **Snow**

During those rare snow days in the Carolinas we make sure that fresh food is not covered up by the falling snow. As snow begins to accumulate we keep a close eye on all structures. Snow can add a significant amount of weight to a roof structure and lead to collapse. Once we get more than 2-3 inches on a roof we start thinking about sweeping/raking the snow off to prevent damage.

### **Really Cold Weather**

Frostbite on the toes is a potential concern. If a heat lamp does not work for a particular situation, maybe a heated perch will. Heating cable can be wrapped around the appropriate branch or piece of lumber and covered with Astroturf™.

If temperatures stay close to or even below freezing even during the day, we often move some of the high-risk species mentioned above indoors for a few days or make sure they have a heat source.

Birds that recently had surgery and now sport metal implants to stabilize fractures may need to be moved indoors, as well. Those metal pins readily conduct cold right into the bones, a very uncomfortable situation.

Fresh food will freeze solid very quickly so it is important to keep a close eye on birds and make sure they are really eating.

### **Supplemental heat**

This is important for many of the sensitive species and for old birds of all species. Make sure lamps are protected from the elements and plugged into GFI breakers. Also make sure the birds cannot come in contact with the bulbs or the housing if that gets hot.

### **YOUR IDEAS GO HERE!**

If you have any proven methods for dealing with the challenges associated with cold weather, please share them with others. Consider writing an article for the next newsletter or think about a presentation for the next symposium. There's no need for every new rehabilitator to "reinvent the wheel".



**Photograph by Mathias Engelmann**

## *What happens when you're full....but you still get calls?*

*by Mathias Engelmann*

Every wildlife rehabilitator has probably been there: It's your busiest season of the year, your facility is filled to capacity and beyond, you're short on volunteer help, and your supplies are running low. And then you get another call about a baby squirrel/baby bunny/baby songbird/baby something (select one). Chances are you'll change your outgoing message to let callers know that you currently cannot take any more animals. Hopefully that message will also include a list of other licensed rehabilitators to try or a website or directory.

Please put yourself in the caller's shoes – they may have already called five or more people and have not found any help. They're getting frustrated. So your outgoing message that says "sorry we're full" will not be well-received. They just want to help that injured or orphaned animal.

I know there are only 24 hours in each day, but if at all possible, try to make sure this animal actually gets to a licensed rehabilitator because the alternatives are not good. The caller will either set the animal free and "let nature take its course" or they will attempt to care for it themselves, which usually does not end well either. We have all heard the horror stories or experienced the results of it. People with good intentions but no knowledge will feed the wrong diet, house animals in improper conditions and manage to imprint or otherwise condemn this animal to death.

There are no easy solutions. Hopefully there are other licensed, experienced folks that can help out. Always encourage other qualified people to apply for permits so that there will be more choices come next spring. None of us work in a vacuum and it's not a competition. Just keep the animals' best interest in mind.

Maybe you can transfer some animals to other facilities on a regular basis so you'll have room again soon. Some rehabilitators have large pre-release cages they are willing to share.

Maybe you need another cage yourself. Consider applying for a cage grant from WRNC—\$ 500 buys a fair amount of materials.



**Photograph by Mathias Engelmann**

## *What do you get out of WRNC?*

*by Toni O'Neil*

We all know what we get out of the annual symposium every January - a way to keep up-to-date on the latest information and care techniques for the birds and animals we treat regularly. We also get a chance to reconnect with old friends we have not seen since the previous symposium, and we can share stories and renew friendships.

But have you thought about what you can get out of WRNC for the rest of the year? Many members are mistaken and think nothing goes on the other 11 months out of the year. They don't realize that they have a Board of Directors looking out for all wildlife rehabilitators in NC, WRNC members or not.

Our board members stay in touch with our state governing office, the North Carolina Wildlife Resources Commission (NCWRC), and meets with them in Raleigh during the year when issues come up about rehabilitation and wildlife laws that would affect us. They have not stopped working on trying to convince the WRC that North Carolina needs a category of Rabies Vector Species (RVS) rehabilitators like the other states have. They have been calling, emailing, writing, and meeting with commissioners for over 14 years now. Proposals, examples, data, statistics, testimonials, letters of support, etc. have been gathered and presented to the NCWRC every year. The RVS Committee has tried so hard to reverse the ruling in NC that forbids us from providing care and treatment to injured and orphaned bats, skunks, raccoons, foxes, and coyotes.

Board members work closely with the NCWRC on other issues concerning permit/license rules and regulations. They stay in the forefront when new regulations are being considered and offer opinions based on experience. Board members are rehabilitators and know exactly what your concerns and questions are - we have them ourselves and want answers. NCWRC respects their efforts and takes their presence at these discussion group meetings seriously. Your board members are looking out for your best interest and for the animals you help.

Cities and towns that lack enough rehabilitators can apply to have a training session scheduled at their location. This helps those areas get the licensed wildlife rehabilitators they need and provide help for the wildlife in their communities. Your board members provide this training as a full weekend class anywhere in the state. If you feel that helping other rehabilitators in the state is important, then you might want to consider playing a bigger role in WRNC - submit your name as a candidate for the election that will be held at the annual General Meeting during the Symposium Banquet on Saturday, January 21st, 2017. If you know of another person who would be a good choice for this position, then submit their name. The Nominating Committee members will contact that person and see if they are interested. Your board of directors is working for you, the members, and for all the wildlife in NC. Be a part of this and be active throughout the year, not just during the Symposium.

**TO LEARN MORE ABOUT UPCOMING NCWRC RULE CHANGES THAT WILL AFFECT YOU ,**

be sure to attend the talk by Daron Barnes with NCWRC at the symposium.

## *“Thank You” to outgoing board members*

*by Mathias Engelmann*

We are sad to see a couple of familiar faces rotate off the WRNC Board this January. They have all contributed to the organization for many years. We're hopeful that we will still catch up with all three of them at every symposium from now on. And there's nothing that says they can't be elected to the board again in a couple of years (Hint Hint!)

- ◆ Elizabeth Hanrahan from the Outer Banks of NC stays busy with critters of all types. In addition to the usual challenges that all rehabilitators face she also has to deal with a long ferry ride every time she needs supplies or needs to transport an animal to and from her facility. Elizabeth has been instrumental in teaching avian rehabilitation skills for a long time - going back to NWRA symposium in the 90's. Many of us owe her for our training.
- ◆ Dr. Joni Seymour has her hands full on a daily basis, between running Rocky Point Animal Hospital and the Cape Fear Raptor Center. In her spare time (??) she is an active falconer, training raptors in preparation for release. Joni represents the new breed of veterinarians who are actively involved in wildlife care. Her experiences with falconry make her perfect as the raptor specialist, and she is able to successfully blend her skills. The results are raptors that are released in great shape in the quickest amount of time.
- ◆ Christina Hildreth is a licensed veterinary technician who has had lots of raptor experience and now works with exotics and pocket pets. She's also heavily involved with her church and mission trips. Christina embodies the ideals of being "good stewards of the earth and its creatures" and practices what she believes in.

We thank them for their years of commitment to wildlife rehabilitation and conservation and wish them well in their next adventure.

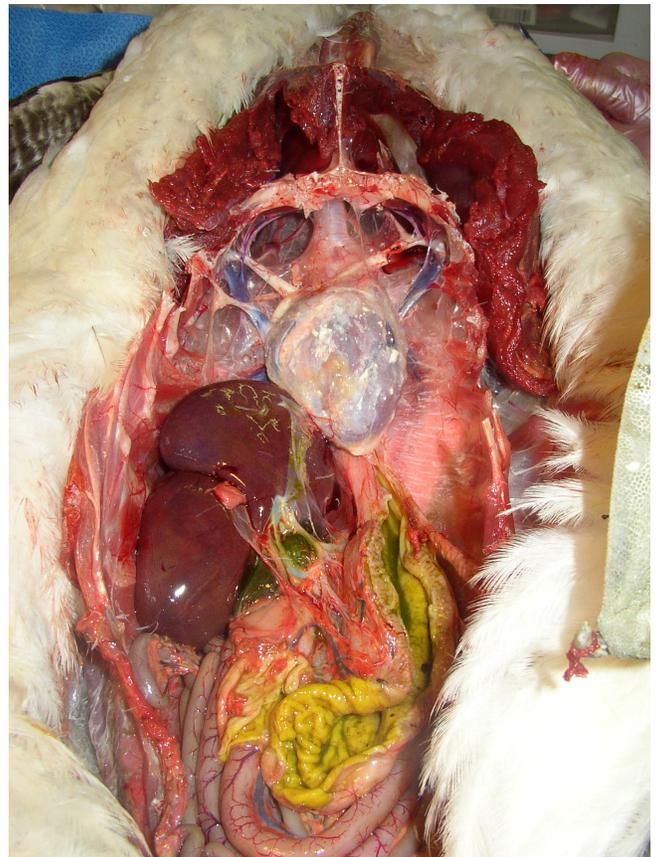
## *A good rehabilitator is a cut above*

*by Toni O'Neil*

One of the tools that a wildlife rehabilitator has at his or her disposal is performing a gross necropsy. No, not “gross” as in “yucky or disgusting” but as a quick overview using an animal autopsy to rule in or rule out a cause of death. This may be important to answer questions about why something died, to relieve a volunteer’s guilt (Was it my fault? Did I do something wrong? Did I cause this?), or to learn more about the damages from disease or injury. Everything may look fine on the outside, but terrible things can be going on inside your patient that you are not aware of - and then the death seems totally unexpected. So learning how to perform a necropsy and handle a body safely can be a tremendous learning opportunity for all rehabbers. A note of caution, however - if you suspect a highly contagious infection may be the cause of death, I do not recommend this procedure. Instead, you have the option to send the body to a formal Diagnostic Laboratory that can perform the necropsy and also has the sophisticated equipment for specific lab testing, blood work analysis, cultures, and tissue biopsies. That would be the safer way to get very detailed answers.

For us using the minimalist approach to a necropsy, we start with the proper personal equipment (disposable gloves and paper face mask), a paper table cloth that will be thrown away, and instruments designated for necropsy only (scissors, tweezers or forceps, and scalpel blades) that can be disinfected. You must work in an area with plenty of light and good air circulation, away from any food items, and away from other live birds and animals. Having a volunteer with a camera nearby may be useful if you want to document your findings. Make sure you protect yourself and your patients by where you choose to work.

You can start by placing the body on its back and making a ventral (belly side) slice carefully through the skin and muscle layer. Don’t cut so deep that you might damage the organs. After all, that is what you really want to observe. If you can find a picture of the internal anatomy of that species, or even just a generalized example of mammal or bird anatomy, that will be very helpful. You can find very detailed pictures on the internet these days,



**Pelican heart lining infection**

**All photographs by Possumwood Acres**

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## *Aspergillosis and Necropsies (continued)*

and these can help you identify what you are seeing. Observe the coloration (is it uniform or blotchy?), are there lesions or parasites present, is anything cut or bleeding, are the intestines blocked, etc. I recommend first practicing necropsies on relatively “normal” bodies so that you can learn to recognize what is abnormal in others.

We will check sometimes to see if a baby opossum that died was tubed incorrectly - then you would look for milk in the lungs. Was a baby pigeon tubed incorrectly? - you would look for a perforated crop. Did the gull that was hit by a car die from internal injuries? - look for blood in the body cavity. Rabbits caught by cats that you are sure escaped being scratched may show tiny punctures or holes in the intestines or other organs - they were doomed from the start. Baby squirrels that survived starvation after someone had it for a week before finally bringing it to you may suddenly die as an active juvenile you are getting ready to release - then you discover an undersized heart as a result of MBD. The necropsy results can either “let you off the hook” or show you what you did wrong so that you don’t repeat it. Every rehabilitator at some point in their career has made mistakes and learned from them.



### **Aspergillosis in a loon**

breath sounds) or starts open mouth breathing (and it’s not a temporary stress reaction) after being with us for a while, we will then euthanize it. We have learned that we cannot save these birds by the time these symptoms appear. The birds are too far gone and the disease is too far advanced. We then use necropsies to verify this. The pictures you see are from loons and pelicans that we admitted recently and that died unexpectedly. Basically, seeing something white, fuzzy, or cottony-looking is not good.

At Possumwood Acres we necropsy the large sea birds fairly regularly to determine cause of death. Loons, gannets, pelicans, gulls, and cormorants are often admitted here since we are located near the coast. We have found signs of acute lead poisoning (discoloration in the gizzard), swallowed hooks (rips in the esophagus or stomach), and massive parasite infestation (so many roundworms the intestine is blocked).

Another common cause is from a fatal respiratory infection known as “asper”. When one of these sea birds starts to gurgle (wet

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## *Aspergillosis and Necropsies (continued)*

In the pictures you can see the lesions throughout the body cavities, in the air sacs, and surrounding the hearts. So what is causing this disease and how serious is it? Are wildlife rehabilitators in danger? Can my volunteers get sick? What can I do to prevent it? Do I need to shut down and go into quarantine? Do I quit rehabilitating birds?

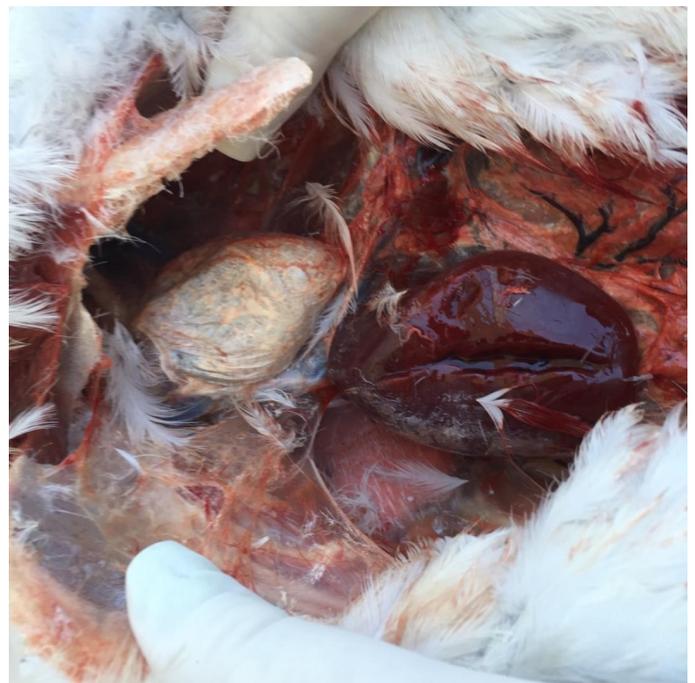
Here's some information to set your minds at rest and prevent wholesale panic. I did a little research to get details for you and to learn more myself. I went straight to the easiest online source to start - Wikipedia, the free encyclopedia.

This web site provided the following explanation:

“Aspergillus is defined as a common group of fungi, which includes many different types of subspecies. These

Aspergillus species are highly aerobic and are found in almost all oxygen-rich environments, where they commonly grow as molds on the surface of a substrate. This fungus can be found growing on damp walls as a major component of mildew and also grows in damp soils, dead leaves, stored grain, compost piles, or in other decaying vegetation. It can contaminate foods such as nuts and cause disease on many grain crops (especially corn) and can produce mycotoxins, including aflatoxin, a serious agricultural pathogen.”

The most common species (*Aspergillus fumigatus*) can cause an allergic pulmonary disease and respiratory infections in humans, birds, and animals. Aspergillosis is the group of diseases caused by *Aspergillus*. Luckily, infections caused by the fungus rarely occur in people who have a healthy immune system. Unfortunately, it can potentially result in endocarditis and/or rapidly necrotizing pneumonia when it takes on a mold form in the host and creates a "fungus ball" that can form within cavities such as the lungs. This is called Aspergilloma.



**Aspergillosis in a Pelican heart**

**Continued on page 16**

## *Aspergillosis and Necropsies (continued)*

Most people breathe in *Aspergillus* spores every day without getting sick. However, people with weakened immune systems or lung diseases are at a higher risk of developing health problems due to *Aspergillus*. The different types of aspergillosis can cause different symptoms, which can include weight loss, fatigue, and breathing difficulty. (From the CDC: Centers for Disease Control and Prevention web site - another great source of information that can help). As rehabilitators, we must make sure we stay healthy enough to avoid these problems and keep our immune systems operating at full capacity. Otherwise, how will we know it's not the "flu" or the beginning of another serious illness?

An interesting article that I discovered was "The ecology of Aspergillosis in seabirds" by Burco, Julia Dorothy, Ph.D., University of California, Davis, 2009. This explored the relationship between fungal organisms in the environment and the devastating consequences to debilitated avian species – particularly seabirds undergoing rehabilitation. Dr. Burco found that "due to the high prevalence of *Aspergillus* spp. infections, the poor prognosis of infected individuals, and the difficulty in detecting sub-clinical infection, it is critical to develop appropriate management recommendations to mitigate the impact of this disease on birds entering captivity." In her research air fungal loads were quantified using a hand-held air sampler and water samples were compared. A significantly higher environmental load of *A. fumigatus* in a large CA rehabilitation center suggested that "seabirds are more at risk of encountering the pathogenic organism and potentially developing disease in captivity." It also raised questions regarding possible origins of infection in seabirds. She concluded that "it has been unclear whether these birds acquire the *Aspergillus* infection from the natural environment prior to entering rehabilitation or from the rehabilitation center itself." This article suggests that "the rehabilitation center environment itself may serve as significant potential sources of infection in sea birds undergoing rehabilitation." Another important component mentioned in this article were "the host susceptibility factors" (such as innate immunity vs. aspergillosis-susceptibility in sea birds and how this contributed to these birds succumbing to the disease.



**Aspergillosis in a Loon**

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## *Aspergillosis and Necropsies (continued)*

Hmmm, maybe these birds are doomed from the start once they leave the clean sea environment and are washed up on the spore-contaminated shore. The initial admitting injury and/or stress from captivity can weaken their immune system further.

So how do we prevent this disease from occurring in the locations where we work? Obviously we will want to prevent any situations that can lead to mold and mildew, prevent accumulation of wet mulch or spoiled animal feeds, and make sure we have a good air circulation system in our rehabilitation areas and animal rooms.

Some of the best information as well as excellent pictures can be found at: [http://www.nwhc.usgs.gov/publications/field\\_manual](http://www.nwhc.usgs.gov/publications/field_manual) (Note: these pictures are NOT for the squeamish.) One of the most reassuring facts they mention is that Aspergillosis is not contagious (it will not spread from bird to bird). This source does explain the differences between the acute, rapidly fatal disease condition and a slow gradual decline from the chronic disease state. This can be due to “high numbers of spores that are released into the atmosphere and inhaled by humans, birds, and other animals. These spores travel through the upper respiratory tract to the lungs. If the spores colonize the lungs, then the fungi may spread to other parts of the body, often leading to death.” This disease is of great concern in NC, particularly to the major industries for poultry farming (chickens and turkeys). The United States Geological Survey (USGS) has documented that in some states, “acute aspergillosis has caused devastating loss of birds in hatcheries. The source of infection in some instances has been contaminated litter.” Proper sanitation measures, common sense, and good husbandry can prevent this from happening. Captive raptors are also at risk, and facilities like the Carolina Raptor Center make sure that their birds are well taken care of. Dirty backyard bird feeders and bird baths that are not routinely disinfected or feeding stations that allow moldy food to accumulate can result in disease outbreaks. The USGS mentions that young birds appear to be much more susceptible than adults in these situations. Backyard bird watchers need to maintain clean feeders if they want to continue enjoying their favorite hobby.

In addition, there was very good information that related to seasonality. The USGS record keeping indicates that “most aspergillosis outbreaks in waterfowl happen in fall to early winter; individual cases can occur at any time, particularly among birds stressed by crippling, oiling, malnutrition, recent capture, and ongoing disease conditions.

Aspergillosis is a frequent complication in hunter-crippled waterfowl, among birds on nutritionally deficient diets, and in Canada geese whose immune systems have been compromised by exposure to environmental contaminants such as lead.” Facilities like the Carolina Waterfowl Rescue deal with thousands of birds and

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## *Aspergillosis and Necropsies (continued)*

this disease is one that they are ever on the alert for. Dealing with so many ducks, geese, and rescued roosters means they have to be vigilant about keeping their feed and grain fresh and dry. Urban settings with country woods may need to be aware of Aspergillosis that can be an important cause of mortality in huge winter roosts of blackbirds. This is due to the deep accumulation of ground droppings (moist organic fecal matter) underneath the trees where these birds sleep at night. Come spring, these winter groups break up and the birds travel off into much smaller flocks, so the problem disappears.

The following Field Signs listed in the USGS Field Manual are signs we see in the sea birds quite often. “The typical aspergillosis-affected bird is emaciated, exhibits severe and progressive difficulty in breathing by gaping or rapid opening and closing of the bill. Birds often appear to be ruffled and dirty, and their wings may droop. Infected birds are usually weak and may fail to try to escape. Infection that reaches the brain can result in obvious loss of muscular coordination and twisting of the head and neck so that the head is held in unnatural positions.” This makes it tough to determine if the Ring-Billed Gull that was found in the Walmart parking lot is suffering from Aspergillosis or was recently hit by a car.

In these particular cases we learned that the birds were already diseased when they arrived at Possumwood Acres. Although there was really nothing we could do to save the loons and pelicans, we provided our typical regimen for emaciated sea birds that includes gavage (tube) feedings every 3 hours with Mazuri Sea Duck Diet, hand feeding small fish, and treating prophylactically with Fenbendazole and Pyrantel, which are effective “dewormers”. We routinely see tapeworms, gape worms, and other round worms passed out in the fecal material or vomited up after this treatment. It is heartbreaking not to be able to save them all, but at least we tried the best we could, and it makes it so much more rewarding when we finally can release these birds back on the local beaches.

### **WANT TO LEARN MORE ABOUT NECROPSIES IN BIRDS?**

Maybe you need to sign up for the Avian Necropsy Lab at the symposium in January.

Spaces are limited.

## *Newsletter Editors*

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## ***BONUS!! WRNC will have SWEATSHIRTS at Symposium 2017, too! by Linda Bergman-Althouse***

You've heard about the new WRNC short-sleeved, crew neck T-Shirt in Chestnut Brown, but as an added bonus to your wildlife wardrobe a comfy, warm Sweatshirt in Indigo Blue for those days with a chill in the air will be available as well!!! BOTH T-shirts and Sweatshirts will be for sale! In addition to our Galapagos (deep blue-green) and Heather Indigo Blue (light blue) which will run \$10.00 a piece, the new T-shirts, which range in multiple sizes from small to XXL, will be \$12.00. The Sweatshirts weigh in at \$20.00 each, which is a fabulous price for an organizational sweatshirt!!! Although I haven't picked up our finished Sweatshirts with our logo, here's a sneak peek at the color, INDIGO BLUE!! Don't forget to pad your budget to make sure you pick one (or a few!) up. Check them out, and if you want yours early or need a unique gift for someone special please contact Linda Bergman-Althouse, WRNC T-Shirt Guru, at 910-358-1596 or [lbergman@cc.rr.com](mailto:lbergman@cc.rr.com) to make mailing or pick up arrangements. Besides personally wearing one proudly to let people know who we are and what we do, they make excellent gifts as well!

See you at the Symposium!!

Linda Bergman-Althouse

